Oxidation of Metals, Vol. 11, No. 6, 1977

Author Index to Volume 11

Barrett, C. A., 199

Caplan, D., 65
Colson, J.-C., 335

Danielewski, M., 355
Deadmore, D. L., 91
Douglass, D. L., 321

Evans, H. E., 1

Forrest, J. E., 109

Garnaud, G., 127, 193
Gilewicz-Wolter, J., 81
Goldberg, A., 23
Graham, M. J., 65

Heinemann, K., 321
Hilton, D. A., 1
Hirth, J. P., 63
Hodgkiess, T., 141
Holm, R. A., 1
Hussey, R. J., 65

Jallouli, E. M., 335

Kaliszewski, E., 151

Lambertin, M., 335
Larpin, J.-P., 335
Lowell, C. E., 91, 199

Mrowec, S., 151, 355, 365, 383

Nissen, D. A., 241

Perkins, J., 23
Przybylski, K., 365, 383

Rao, D. B., 321
Rapp, R. A., 63, 193

Shatynski, S. R., 307
Sproule, G. I., 65
Stokłosa, A., 263, 277, 355
Stott, F. H., 109, 141
Stringer, J., 225, 263, 277

Wagner, J. B. Jr., 133
Wood, G. C., 109, 141, 163
Wright, I. G., 141, 163

Zaplatynsky, I., 289

This journal is copyrighted by Plenum. Each article is available for $7.50 from Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Subject Index to Volume 11

Autoradiography, ^{35}S, oxidation of Fe in SO_2, 81

Calcium, low-temperature oxidation in water vapor, 241
$Ca(OH)_2$, formation of, during Ca oxidation in H_2O, 241
Carbonaceous atmospheres, effect on oxide films, 23
Carburization, during oxidation of alloys, 23
Chemical diffusion in β-Ni_3S_2, 277
Chromium depletion, in stainless steel, 1
CO_2, oxidation of iron, 65
Co–Cr alloys, oxidation at 1000°C, 163
Cobalt, dilute alloys, high-temperature oxidation, 141
Cobalt, oxidation, 365
Cobaltous oxide, self-diffusion and defect structure, 383
Copper, formation of double oxide layer, 127
Copper–nickel, (001) thin films, oxidation, 327
Cyclic oxidation, method of measurement, 151
Cyclic oxidation, resistance of Ni–Cr–Al alloys, 199

Defect structure, nickel sulfide (β-Ni_3S_2), 277
Defects in solids, conference report, 133
Diffusion in solids, conference report, 133
Diffusional growth of scales, 57
Double oxide formation, on copper, 127

Ellingham diagrams, transition metal sulfides, 307

Ferritic steels, sulfidation, 335
Free energy, Gibbs, transition metal sulfides, 307

Grain growth, in scales, during oxidation of iron, 65
Growth of films, iron in O_2 and CO_2, 65

Heater alloys, cyclic oxidation, 151
High-temperature alloys, behavior in carbonaceous gases, 23
H_2S–H_2, sulfidation of ferritic steel, 335
H_2S–H_2, sulfidation of Ni, 263

Internal attack of nitrided stainless steel, 1
Iron, oxidation in O_2 and CO_2, 65
Iron, oxidation in SO_2, 81
Iron, thickness of oxide layers, 193

Marker method, 81
Metal dusting, 23

Nickel, dilute alloys, high-temperautre oxidation, 141
Nickel, sulfidation in H_2S–H_2, 263
Nickel sulfide (β-Ni_3S_2) defect structure and diffusion, 277
Ni–Cr–Al alloys, resistance to cyclic oxidation, 199
Ni–V alloys, oxidation at 1200°C, 109
Nitrided stainless steel, internal attack during oxidation, 1
Nucleation of oxides, (001) Cu–Ni films, 321

Parabolic rate constant, Co oxidation, 365

^{35}S, iron oxidation in SO_2, 81
Scale-resistant alloys, cyclic oxidation, 91
Self-diffusion, in CoO, 383
SO_2, oxidation of iron, 81
Spalling of oxides, effect of ΔI, 91
Stainless steel, nitrided, oxidation of, 1
Stress, in scales during cyclic oxidation, 91
Sulfidation, of ferritic steel, 335
Sulfidation, of Ni in H_2S–H_2, 263
Sulfidation, of ferritic steel, 335
Sulfides, thermochemistry, 307
Superalloys, volatilization of oxides, 289

This journal is copyrighted by Plenum. Each article is available for $7.50 from Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Tantalum, oxidation in O_2–N_2 and O_2–inert gas, 225
Thermobalance, for high-temperature sulfidation, 355
Thin films, oxidation of (001) Cu–Ni, 321
Transition-metal sulfides, thermochemistry, 307
Transmission electron microscopy, *in situ* oxidation, 321
Volatilization of oxides during oxidation, 289

Water vapor, oxidation of calcium, 241

Zirconia, pickup, effect on cyclic oxidation, 199

CONTENTS

Vol. 11, No. 1 **February 1977**

Internal Attack During the Oxidation of Nitrided Stainless Steels 1
H. E. Evans, D. A. Hilton, and R. A. Holm

Behavior of Oxide Films on High-Temperature Alloys in Carbonaceous Gas Atmospheres 23
J. Perkins and A. Goldberg

The Diffusional Growth of a Scale with Variable Composition, Diffusivity, and Molar Volume 57
J. P. Hirth and R. A. Rapp

Announcement 63

Vol. 11, No. 2 **April 1977**

The Growth and Structure of Oxide Films Formed on Fe in O_2 and CO_2 at 550°C 65
R. J. Hussey, G. I. Sproule, D. Caplan, and M. J. Graham

Study of Iron Oxidation in Sulfur Dioxide Atmospheres by Means of the ^{35}S Radioisotope 81
Jolanta Gilewicz-Wolter

The Effect of ΔT (Oxidizing Temperature Minus Cooling Temperature) on Oxide Spallation 91
Daniel L. Deadmore and Carl E. Lowell

Announcement 107

Vol. 11, No. 3 **June 1977**

The Oxidation Behavior of Dilute Ni–V Alloys at 1200°C 109
F. H. Stott, J. E. Forrest, and G. C. Wood

The Formation of a Double Oxide Layer on Pure Copper 127
G. Garnaud

Report on a U.S.–Japan Joint Seminar on "Defects and Diffusion in Solids" 133
J. Bruce Wagner, Jr.

Factors Affecting the High-Temperature Oxidation Behavior of Some Dilute Nickel- and Cobalt-Base Alloys 141
F. H. Stott, I. G. Wright, T. Hodgkiess, and G. C. Wood

Cyclic Oxidation Method for Studying Scale-Resistant Metallic Materials 151
E. Kaliszewski and S. Mrowec

Vol. 11, No. 4 **August 1977**

The Isothermal Oxidation of Co–Cr Alloys in 760 Torr Oxygen at 1000°C 163
I. G. Wright and G. C. Wood

Thickness of the Oxide Layers Formed During the Oxidation of Iron 193
G. Garnaud and Robert A. Rapp

Resistance of Ni–Cr–Al Alloys to Cyclic Oxidation at 1100 and 1200°C 199
Charles A. Barrett and Carl E. Lowell

Vol. 11, No. 5 **October 1977**

Oxidation of Tantalum in Oxygen–Nitrogen and Oxygen–Inert Gas Mixtures 225
John Stringer

The Low-Temperature Oxidation of Calcium by Water Vapor 241
D. A. Nissen

Studies of the Kinetics of Nickel Sulfidation in H_2S–H_2 Mixtures in the Temperature Range 450–600°C 263
A. Stockłosa and J. Stringer

Defect Structure and Chemical Diffusion in Nickel Sulfide β-Ni_3S_2 277
A. Stockłosa and J. Stringer

Vol. 11, No. 6 **December 1977**

Volatilization of Oxides During Oxidation of Some Superalloys at 1200°C 289
Isidor Zaplatynsky

The Thermochemistry of Transition Metal Sulfides 307
Stephen R. Shatynski

In Situ Oxidation Studies on (001) Copper–Nickel Alloy Thin Films 321
Klaus Heinemann, D. Bhogeswara Rao, and D. L. Douglass

Corrosion of Ferritic Steels (Fe–Cr–Al) in Sulfur Vapor and H_2S/H_2 Mixtures 335
El Miloud Jalloùli, Jean-Pierre Larpin, Michel Lambertin, and Jean-Claud Colson

A New Thermobalance for Studying the Kinetics of High-Temperature Sulfidation of Metals 355
S. Mrowec, A. Stokłosa, and M. Danielewski

Oxidation of Cobalt at High Temperature 365
S. Mrowec and K. Przybylski

Self-Diffusion and Defect Structure in Cobaltous Oxide 383
S. Mrowec and K. Przybylski

Author Index to Volume 11 405

Subject Index to Volume 11 407